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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Completeness If Known

Application Number	09/275,252
Filing Date	March 24, 1999
First Named Inventor	Roderick MacKinnon
Group Art Unit	1653
Examiner Name	Bugiasky, Gabriele E.
Attorney Docket Number	018512-002901US

Sheet	1	of	12
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[illegible]

FOREIGN PATENT DOCUMENTS								
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ²
		Office ³	Number ⁴	Kind Code ⁵ (if known)				
S	14.	WO	91/19735			28 Dec. 1991		<input type="checkbox"/>
S	15.	WO	93/20242			14 Oct. 1993		<input type="checkbox"/>
S	18.	WO	92/00091			9 Jan. 1992		<input type="checkbox"/>
S	17.	US	96/10287					<input type="checkbox"/>
S	18.	WO	88/08534		MAY et al.,			<input type="checkbox"/>
S	19.	WO	90/02545					<input type="checkbox"/>
S	20.	European	0,281,327					<input type="checkbox"/>
S	21.	European	0,280,559					<input type="checkbox"/>

Date
Considered

40 12/1/06

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449A/PTO		Complete If Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/275,252
		Filing Date	March 24, 1999
		First Named Inventor	Roderick MacKinnon
		Group Art Unit	1653
		Examiner Name	Buglasky, Gabriele E.
Sheet 2 of 12	Attorney Docket Number	018512-002901US	

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
SS	22.	Koyama et al., <i>FEBS Lett.</i> , 341:303-7 (1994)	<input type="checkbox"/>
SS	23.	Morishige et al., <i>FEBS Lett.</i> , 348:251-6 (1994)	<input type="checkbox"/>
SS	24.	Inagaki et al., <i>J Biol Chem.</i> , 270:5691-4 (1995)	<input type="checkbox"/>
SS	25.	Ferrer et al., <i>J Biol Chem.</i> , 270:26086-91 (1995)	<input type="checkbox"/>
SS	26.	Ishii et al., <i>J. Biol. Chem.</i> , 272:23195-200 (1997)	<input type="checkbox"/>
SS	27.	Gross et al., <i>Neuron</i> , 13:961-6 (1994)	<input type="checkbox"/>
SS	28.	Hanner et al., <i>J Biol Chem.</i> , 273:16269-96 (1998)	<input type="checkbox"/>
SS	29.	Wang et al., <i>Proc Natl Acad Sci USA</i> , 95:2653-6 (1998)	<input type="checkbox"/>
SS	30.	Liman et al., <i>Nature</i> , 353:752-6 (1991)	<input type="checkbox"/>
SS	31.	Miller et al., <i>Neuron</i> , 16:853-8 (1996)	<input type="checkbox"/>
SS	32.	Tang et al., <i>J Gen Physiol.</i> , 109:301-11 (1997)	<input type="checkbox"/>
SS	33.	Collioud et al., <i>Bioconjugate Chem.</i> , 4:528-538 (1993)	
SS	34.	Schuhmann et al., <i>Adv. Mater.</i> , 3:388-391 (1991)	
SS	35.	Lu et al., <i>Anal. Chem.</i> , 67:83-87 (1995)	
SS	36.	Iwane et al., <i>Biophys. Biochem. Res. Comm.</i> , 230:76-80 (1997)	

Examiner Signature		Date Considered	6/1/00
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		Filing Date	March 24, 1999
		First Named Inventor	Roderick MacKinnon
		Group Art Unit	1653
		Examiner Name	Bugiasky, Gabriele E.
Sheet 3 of 12	Attorney Docket Number	018512-002901US	

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
SS	37.	Ng et al., <i>Langmuir</i> , 11:4048-55 (1995)	
SS	38.	Schmitt et al., <i>Angew. Chem. Int. Ed. Engl.</i> , 35:317-20 (1996)	
SS	39.	Frey et al., <i>Proc. Natl. Acad. Sci. USA</i> , 93:4937-41 (1996)	
SS	40.	Kubalek et al., <i>J. Struct. Biol.</i> , 113:117-123 (1994)	
SS	41.	Sigal et al., <i>Anal. Chem.</i> , 68:490-497 (1996)	
SS	42.	Gascoigne et al., <i>Proc. Natl. Acad. Sci. USA</i> , 84:2936-2940 (1987)	
SS	43.	Capon et al., <i>Nature</i> , 377:525-531 (1989)	
SS	44.	Trautnecker et al., <i>Nature</i> , 339:68-70 (1989).	
SS	45.	Heginbotham et al., <i>J Gen Physiol</i> , 111(6):741-9 (1998 Jun)	
SS	46.	Cuello et al., <i>Biochemistry</i> Mar 10, 37(10):3229-36. (1998)	
SS	47.	Shin et al., <i>FEBS Lett</i> Oct 6, 415(3):299-302 (1997)	
SS	48.	Santacruz-Toloza et al., <i>Biochemistry</i> , 33(8):1295-9. (Feb 1994)	
SS	49.	Furka et al., <i>Int. J. Pept. Prot. Res.</i> , 37:487-493 (1991)	
SS	50.	Houghten et al., <i>Nature</i> , 354:84-88 (1991)	
SS	51.	Hobbs et al., <i>Proc. Natl. Acad. Sci. USA</i> , 90:6909-6913 (Aug. 1993)	

Examiner Signature		Date Considered	10/6/06
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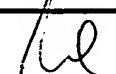
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Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/275,252
		Filing Date	March 24, 1999
		First Named Inventor	Roderick MacKinnon
		Group Art Unit	1653
		Examiner Name	Buglasky, Gabriele E.
		Attorney Docket Number	018512-002901US
Sheet	4	of	12

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
CS	52.	Hagihara et al., <i>J. Amer. Chem. Soc.</i> , 114:6568 (1992)	
SS	53.	Hirschmann et al., <i>J. Amer. Chem. Soc.</i> , 114:9217-9218 (1992)	
SS	54.	Chen et al., <i>J. Amer. Chem. Soc.</i> , 116:2661 (1994)	
SS	55.	Cho, et. al., <i>Science</i> , 261:1303 (1993)	
SS	56.	Campbell et al., <i>J. Org. Chem.</i> , 59:658 (1994)	
SS	57.	Gordon et al., <i>J. Med. Chem.</i> , 37:1385 (1994)	
SS	58.	Vaughan et al., <i>Nature Biotechnology</i> , 14(3):309-314 (1996)	
SS	59.	Liang et al., <i>Science</i> , 274:1520-1522 (1996)	
SS	60.	Ackerman et al., <i>New Engl. J. Med.</i> , 336:1575-1595 (1997)	
SS	61.	Hamil et al., <i>Pflugers. Archiv.</i> , 391:85 (1981)	
SS	62.	Vestergaard-Bogind et al., <i>J. Membrane Biol.</i> , 88:67-75 (1985)	
SS	63.	Daniel et al., <i>J. Pharmacol. Meth.</i> , 25:185-193 (1991)	
SS	64.	Holevinsky et al., <i>J. Membrane Biology</i> , 137:59-70 (1994)	
SS	65.	Blatz et al., <i>Nature</i> , 323:718-720 (1986)	
SS	66.	Park, <i>J. Physiol.</i> , 481:555-570 (1994)	

Examiner Signature		Date Considered	10/16/06
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Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/275,252
		Filing Date	March 24, 1999
		First Named Inventor	Roderick MacKinnon
		Group Art Unit	1653
		Examiner Name	Bugiasky, Gabriele E.
Sheet 5 of 12	Attorney Docket Number	018512-002901US	

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
SS	67.	Kohler et al., <i>Nature</i> , 258:495-497 (1975)	
SS	68.	Kozbor et al., <i>Immunology Today</i> , 4:72 (1983)	
SS	69.	Cole et al., <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 80:2026-2030 (1983)	
SS	70.	Cole et al., in <i>Monoclonal Antibodies and Cancer Therapy</i> , Alan R. Liss, Inc., pp. 77-98 (1985)	
SS	71.	Morrison et al., <i>J. Bacteriol.</i> , 159:870 (1984)	
SS	72.	Neuberger et al., <i>Nature</i> , 312:604-608 (1984)	
SS	73.	Takeda et al., <i>Nature</i> , 314:452-454 (1985)	
SS	74.	Huse et al., <i>Science</i> , 248:1275-1281 (1989)	
SS	75.	Engvall, <i>Methods in Enzymology</i> , 70:418-439 (1980)	
SS	76.	Benoist et al., <i>Nature</i> , 290:304-310 (1981)	
SS	77.	Yamamoto, et al., <i>Cell</i> , 22:787-797 (1980)	
SS	78.	Wagner et al., <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 78:1441-1445 (1981)	
SS	79.	Brinster et al., <i>Nature</i> , 298:39-42 (1982)	
SS	80.	Ville-Komaroff, et al., <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 75:3727-3731 (1978)	
SS	81.	DeBoer et al., <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 80:21-25 (1983)	

Examiner Signature		Date Considered	10/14/05
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Substitute for form 1449/APTO		Complete if Known			
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/275,252		
		Filing Date	March 24, 1999		
		First Named Inventor	Roderick MacKinnon		
		Group Art Unit	1653		
		Examiner Name	Bugiasky, Gabriele E.		
Sheet	6	of	12	Attorney Docket Number	018512-002901US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
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SS	82.	Gilbert et al., <i>Scientific American</i> , 242:74-94 (1980)	
SS	83.	Swift et al., <i>Cell</i> , 38:839-846 (1984)	
SS	84.	Omitz et al., <i>Cold Spring Harbor Symp. Quant. Biol.</i> , 50:399-409 (1986)	
SS	85.	MacDonald, <i>Hepatology</i> , 7:42S-51S (1987)	
SS	86.	Hanahan, <i>Nature</i> , 315:115-122 (1985)	
SS	87.	Grosschedl et al., <i>Cell</i> , 38:647-658 (1984)	
SS	88.	Adams et al., <i>Nature</i> , 318:533-538 (1985)	
SS	89.	Alexander et al., <i>Mol. Cell. Biol.</i> , 7:1436-1444 (1987)	
SS	90.	Leder et al., <i>Cell</i> , 45:485-495 (1986)	
SS	91.	Pinkert et al., <i>Genes and Devel.</i> , 1:268-276 (1987)	
SS	92.	Krumlauf et al., <i>Mol. Cell. Biol.</i> , 5:1839-1848 (1985)	
SS	93.	Hammer et al., <i>Science</i> , 235:53-58 (1987)	
SS	94.	Kelsey et al., <i>Genes and Devel.</i> , 1:161-171 (1987)	
SS	95.	Magram et al., <i>Nature</i> , 315:338-340 (1985)	
SS	96.	Kollias et al., <i>Cell</i> , 48:89-94 (1986)	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/275,252
		Filing Date	March 24, 1999
		First Named Inventor	Roderick MacKinnon
		Group Art Unit	1653
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Sheet 7 of 12	Attorney Docket Number	018512-002901US	

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SS	97.	Readhead et al., <i>Cell</i> , 48:703-712 (1987)	
SS	98.	Shani, <i>Nature</i> , 314:283-286 (1985)	
SS	99.	Mason et al., <i>Science</i> , 234:1372-1378 (1986)	
SS	100.	Bugg et al., <i>Scientific American</i> , 12:92-98 (1993)	
SS	101.	West et al., <i>TIPS</i> , 16:67-74 (1995)	
SS	102.	Lam et al., <i>Science</i> , 263:380-384 (1994)	
SS	103.	Wlodawer et al., <i>Ann. Rev. Biochem.</i> , 62:543-585 (1993)	
SS	104.	Appelt, <i>Perspectives in Drug Discovery and Design</i> , 1:23-48 (1993)	
SS	105.	Erickson, <i>Perspectives in Drug Discovery and Design</i> , 1:109-128 (1993)	
SS	106.	Scott et al., <i>Science</i> , 249:386-390 (1990)	
SS	107.	Cwirla et al., <i>Proc. Natl. Acad. Sci.</i> , 87:6378-6382 (1990)	
SS	108.	Devlin et al., <i>Science</i> , 249:404-406 (1990)	
SS	109.	Navaza, <i>Acta Crystallographica A</i> 50, 157-163 (1994)	
SS	110.	Hille, <i>Ionic Channels of Excitable Membranes, Second Edition</i> (Sinauer Associates, Inc. Mass. 1992)	
SS	111.	Hodgkin et al., <i>J. Physiol. (Lond.)</i> , 128:61 (1955)	

Examiner Signature		Date Considered	10/16/01
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		Application Number	09/275,252		
		Filing Date	March 24, 1999		
		First Named Inventor	Roderick MacKinnon		
		Group Art Unit	1653		
		Examiner Name	Bugiasky, Gabriele E.		
Sheet	8	of	12	Attorney Docket Number	018512-002901US

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SS	112.	Hagiwara et al., <i>J. Gen. Physiol.</i> , 70:269 (1977)	
SS	113.	Hille et al., <i>J. Gen. Physiol.</i> , 72:409 (1978)	
SS	114.	Nayton et al., <i>J. Gen. Physiol.</i> , 92:549 (1988)	
SS	115.	Armstrong et al., <i>J. Gen. Physiol.</i> , 48:859 (1965)	
SS	116.	Armstrong, <i>J. Gen. Physiol.</i> , 50:491 (1966)	
SS	117.	Armstrong, <i>J. Gen. Physiol.</i> , 54:553 (1969)	
SS	118.	Armstrong, <i>J. Gen. Physiol.</i> , 58:413 (1971)	
SS	119.	Heginbotham et al., <i>Science</i> , 258:1152 (1992)	
SS	120.	Heginbotham et al., <i>J. Biophys.</i> , 66:1061 (1994)	
SS	121.	Schrempf et al., <i>EMBO J.</i> , 14:5170 (1995)	
SS	122.	Heginbotham et al., <i>Biochemistry</i> , 36:10335 (1997)	
SS	123.	Cortes et al., <i>Biochemistry</i> , 36:10343 (1997)	
SS	124.	MacKinnon, <i>Nature</i> , 350:232 (1991)	
SS	125.	Ketchum et al., <i>Nature</i> , 378:690 (1995)	
SS	126.	Doyle et al., <i>Science</i> , 280:69-77 (1998)	

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Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/275,252
		Filing Date	March 24, 1999
		First Named Inventor	Roderick MacKinnon
		Group Art Unit	1653
		Examiner Name	Bugiasky, Gabriele E.
		Attorney Docket Number	018512-002901US
Sheet	9	of	12

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
SS	127.	MacKinnon et al., <i>Science</i> , 280:108-109 (1998)	
SS	128.	Kleywegt et al., <i>Structure</i> , 5:1557 (1997)	
SS	129.	Deisenhofer et al., <i>Nature</i> , 318:618 (1985)	
SS	130.	Cowan et al., <i>Nature</i> , 358:727 (1992)	
SS	131.	Kreusch et al., <i>J. Mol. Biol.</i> , 243:891 (1994)	
SS	132.	MacKinnon et al., <i>Science</i> , 245:1382 (1989)	
SS	133.	MacKinnon et al., <i>Neuron</i> , 5:787 (1990)	
SS	134.	Stocker et al., <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 91:9509 (1994)	
SS	135.	Goldstein et al., <i>Neuron</i> , 12:1377 (1994)	
SS	136.	Hidalgo et al., <i>Science</i> , 268:307 (1995)	
SS	137.	Aiyar et al., <i>Neuron</i> , 15:1169 (1995)	
SS	138.	Naranjo et al., <i>Neuron</i> , 16:123 (1996)	
SS	139.	Ranganathan et al., <i>Neuron</i> , 16:131 (1996)	
SS	140.	Gross et al., <i>Neuron</i> , 18:399 (1996)	
SS	141.	Armstrong et al., <i>J. Gen. Physiol.</i> , 59:388 (1972)	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	09/275,252
				Filing Date	March 24, 1999
				First Named Inventor	Roderick MacKinnon
				Group Art Unit	1653
				Examiner Name	Buglasky, Gabriele E.
Sheet	10	of	12	Attorney Docket Number	018512-002901US

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Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
SS	142.	MacKinnon et al., <i>Science</i> , 250:276 (1990)	
SS	143.	Yellen et al., <i>Science</i> , 251:939 (1991)	
SS	144.	Liu et al., <i>Neuron</i> , 19:175 (1997)	
SS	145.	Parsegian, <i>Annals NY Acad. Sciences</i> , 284:161 (1975)	
SS	146.	Sall et al., <i>Nature</i> , 335:740 (1988)	
SS	147.	Aqvist et al., <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 88:2026 (1991)	
SS	148.	Lockhart et al., <i>Science</i> , 257:947 (1992)	
SS	149.	Lockhart et al., <i>Science</i> , 260:198-199 (1993)	
SS	150.	Bezanilla et al., <i>J. Gen. Physiol.</i> , 60:588 (1972)	
SS	151.	Hille, <i>J. Gen. Physiol.</i> , 61:669 (1973)	
SS	152.	Almers et al., <i>J. Physiol. (Lond.)</i> , 353:585 (1984)	
SS	153.	Hess et al., <i>Nature</i> , 309:453 (1984)	
SS	154.	Neyton et al., <i>J. Gen. Physiol.</i> , 92:569 (1988)	
SS	155.	Tate et al., <i>J. Appl. Cryst.</i> , 28:196 (1995)	
SS	156.	Thiel, et al., <i>Rev. Sci. Instrum.</i> , 67:3361 (1996)	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/275,252
		Filing Date	March 24, 1999
		First Named Inventor	Roderick MacKinnon
		Group Art Unit	1653
		Examiner Name	Buglasky, Gabriele E.
		Attorney Docket Number	018512-002901US
Sheet	11	of	12

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
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JS	157.	Otwinowski et al., <i>Science and Engineering Research Council, Daresbury Laboratory, Daresbury, UK, (1993), pp. 56-62</i>	
JS	158.	Collaborative Computational Project 4 (CCP4), <i>Acta Cryst., D50:760 (1994)</i>	
JS	159.	Sheldrick, <i>Acta Cryst., 48:467 (1990)</i>	
JS	160.	Jones et al., <i>Acta Cryst., A47:110 (1991)</i>	
JS	161.	Gamblin et al., <i>Proceedings of the CCP4 Study weekend, Daresbury Laboratory, pp. 163-169 (1996)</i>	
JS	162.	Zhang et al., <i>Acta Cryst., A46:377 (1990)</i>	
JS	163.	Kraulis, <i>J. Appl. Cryst., 24:946 (1991)</i>	
JS	164.	Smart et al., <i>J. Mol. Graphics, 14:354 (1996)</i>	
JS	165.	Garcia et al., <i>J. Bioenerg. Biomem., 23:615 (1991)</i>	
JS	166.	Miller, <i>Neuron, 15:5 (1995)</i>	
JS	167.	MacKinnon et al., <i>J. Gen. Physiol., 91:335 (1998)</i>	
JS	168.	Park et al., <i>Neuron, 9:307 (1992)</i>	
JS	169.	Doyle et al., <i>Science, 280:69-77 (1998)</i>	
JS	170.	MacKinnon et al., <i>Science, 245:1382 (1989)</i>	
JS	171.	Hidalgo et al., <i>Science, 268:307 (1995)</i>	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/275,252
		Filing Date	March 24, 1999
		First Named Inventor	Roderick MacKinnon
		Group Art Unit	1653
		Examiner Name	Buglasky, Gabriele E.
Sheet 12 of 12	Attorney Docket Number	018512-002901US	

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SL	172.	Garcia et al., <i>Biochemistry</i> , 33:6834 (1994)	
JS	173.	DeBin et al. <i>Am. J. Physiol. Soc.</i> , 264:C369 (1993)	
SS	174.	Lippens et al., <i>Biochemistry</i> , 34:13 (1995)	
SS	175.	Aggarwal et al., <i>Neuron</i> , 16:1169 (1996)	
SS	176.	Cohen et al., <i>Anal. Chem.</i> , 68:31 (1996)	
SS	177.	Krezel et al., <i>Prot. Sci.</i> , 4:1478 (1995)	
SS	178.	Nicholls et al., <i>Proteins</i> , 11:281 (1991)	

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